

Building with **Thermo-**
Con *Cellular*
Concrete

Reg. U. S. Pat. Office



Higgins
INC.

THERMO-CON DIVISION
New Orleans 22, La.

PREFACE

In a general way, building with Thermo-Con cellular concrete resembles building with reinforced concrete. The details, however, vary considerably, particularly in the methods of placement, finishing and curing.

The purpose of this booklet, therefore, is to point out these differences and to assist the builder until he has gained experience with the material and its system. There is no substitute for ingenuity, but it would be well to be guided at first by the methods outlined here.

Thermo-Con cellular concrete contains no aggregate and is pumped as a liquid from the Thermo-Con generator into the forms. No rodding, tamping, or vibration is needed nor desired. After it is in the forms, it expands to 2-1/4 times its original volume. Thus, 7" of liquid will result in about 16" of expanded material. Forms must be reasonably water tight so as to contain the liquid slurry until it has expanded and set.

Finishing the surface of a Thermo-Con cellular concrete slab presents problems which are dealt with later.

Water curing of the material is not practiced. Although it will increase the strength somewhat, it retards the shrinkage, resulting in the need for too long a time between casting and finishing operations.

The Thermo-Con cellular concrete forming system consists of setting up wall and ceiling forms to cast monolithically either a single story building, integral with roof, or the walls of any story with floor slab of the next story.

Thermo-Con forms are modular plastic faced marine bonded wood forms developed primarily for use with this construction system. The main features are ease and rapidity of erection and stripping, plus reusability on many and varied types of structures. The basic wall forms, 4' x 8', are assembled in pairs providing a rigid section requiring neither bracing nor wales. The 2' x 8' and 1' x 8' wall forms provide maximum flexibility of design, and ceiling forms are provided in sizes to carry out the module set by the walls.

Thermo-Con forms are sturdily constructed of good materials to last through many uses. However, as with any piece of equipment, careless handling and rough treatment will shorten their life, resulting in high amortization costs and rougher wall surfaces. A little care and judgment will pay dividends in the long run.

PREPARATION AND PLANNING

Every successful builder knows that proper planning and scheduling can make or break a job. The items listed below are some which may easily be forgotten by a crew which has not had experience with the Thermo-Con cellular concrete system:

FOR FORM ASSEMBLY AND ERECTION:

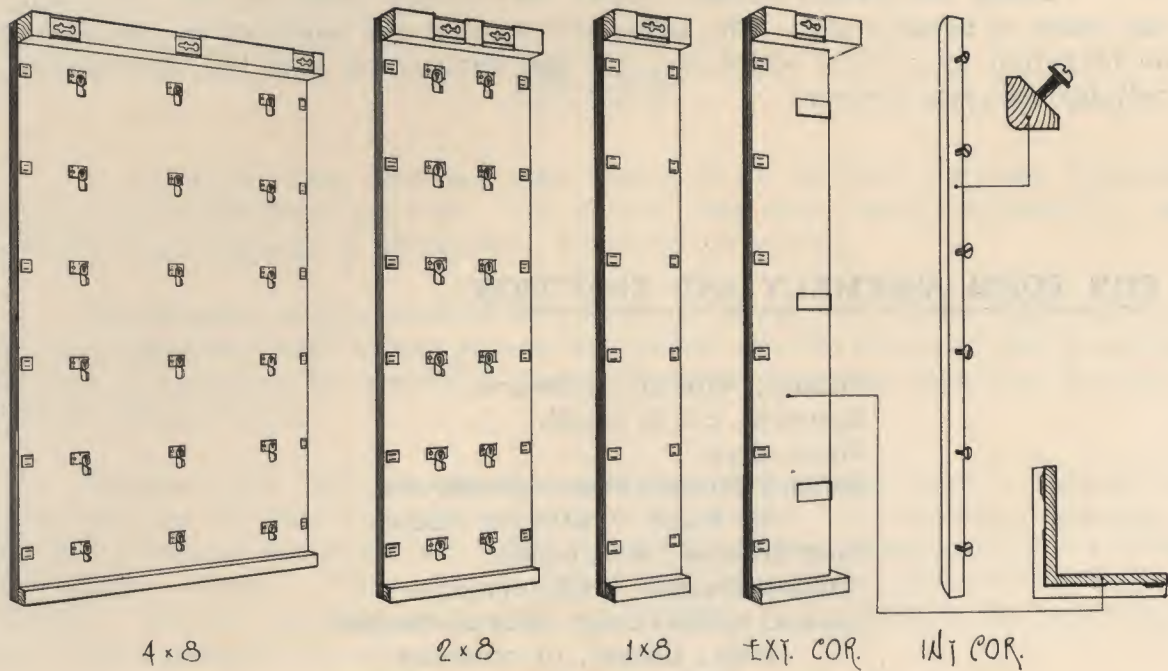
- Forms, with all hardware.
- Spacers, cut to length.
- Mesh clips.
- Mesh (flattened sheets preferred for walls - rolls for slabs).
- Door frames, with bucks.
- Window frames, with formers.
- Special reinforcing, such as hooked rods, lintels, or columns.
- Masking tape to seal window frames and electrical boxes
- Sponge rubber strips to seal windows to formers.
- Wood preservative for treatment of wood which will be embedded in Thermo-Con cellular concrete.
- All electrical conduits and boxes.
- Tie wire for reinforcing.
- High chairs to support mesh in slabs.
- Sand, for sealing of forms.
- Shoring lumber.

Forms, of course, should be stacked in a place convenient to where they will be erected. Ceiling panels sufficient for each room may be stacked in the center of room area to obviate carrying in after wall forms are up.

The foreman on the job should familiarize himself thoroughly with the instructions for use of the forms, and should exercise a close watch to see that forms are handled properly; that mesh is properly lapped and tied, and that all work is done in a workmanlike manner.

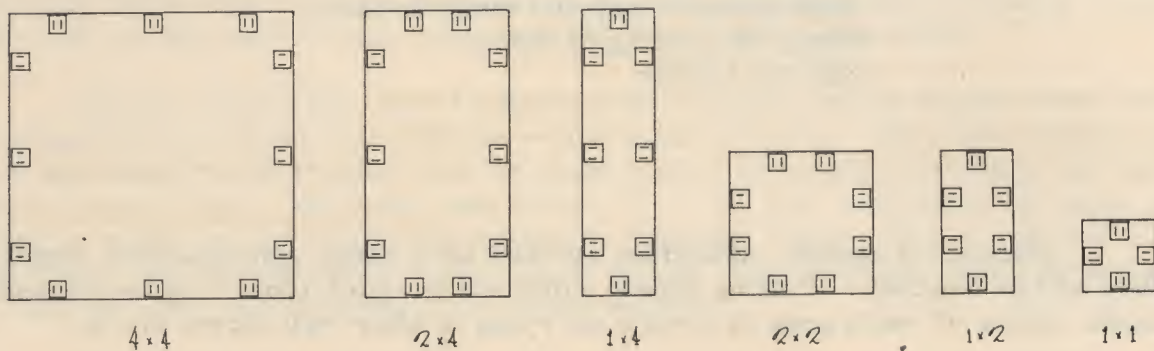
Close scrutiny of roof edges and cast-in raglets is important, as defects here are most easily visible. All shoring must be sound and anchored against shifting.

DESCRIPTION OF FORMS



WALL PANELS

4' x 8' and 2' x 8' forms are assembled in pairs using spacers and pins as illustrated on Page 6. 1' x 8' panels are used singly to close forms where partitions intersect, or in pairs to give room sizes in uneven feet. Exterior and interior corners are used as their names imply.



CEILING PANELS

Ceiling panels are erected to correspond to wall panels except where otherwise called for on form layout; i.e., in a corner where the right wall starts with 4' x 8' and the left with 2' x 8', a 2' x 4' panel will be used so that ceiling joint lines and wall joint lines coincide. Ceiling panels are attached to wall panels with ceiling dogs and to each other with panel dogs as illustrated on Page 10

WEIGHT OF FORMS AND HARDWARE REQUIRED

Form	Weight, Pounds	Pieces Required			Per Clamps	Form	
		Panel Dogs	Corner Pins	Ceiling Dogs		Mesh Clips	Spacers
4 x 8	103	6	9	3		14	9
2 x 8	58	6		2		10	6
1 x 8	27	6		1			
Exterior Corner	49	6		2			
Interior Corner	8		6				
4 x 4	45	6					
2 x 4	25	5					
1 x 4	14	4					
2 x 2	14	4					
1 x 2	9	3					
1 x 1	5	2					
8' Roof Edge	33	1			5		
4' Roof Edge	20	1			3		
2' Roof Edge	8	1			2		
1' Roof Edge	5	1			1		

Panel Dogs	85 lbs./100	Ingredient "X"	11.6 lbs./Gallon
Pins	100 lbs./100	Ingredient "Y"	1.0 lb. /Bag
Corner Dogs	82 lbs./100	Ingredient "Z"	2.0 lbs./Can
Ceiling Dogs	54 lbs./100		
Clamps	40 lbs./100	TOTAL	14.6 lbs./Batch
Mesh Clips	4 lbs./100		
6" Spacers	6 lbs./100		
1" Spacers	2 lbs./100		
1" Plugs	1 lb. /100		

RECOMMENDED SHEET SIZES: For 4 x 4 x 6/6 Welded Wire Mesh in flat-tened sheets: (Mesh weighs 62 lbs. per cu.ft.)

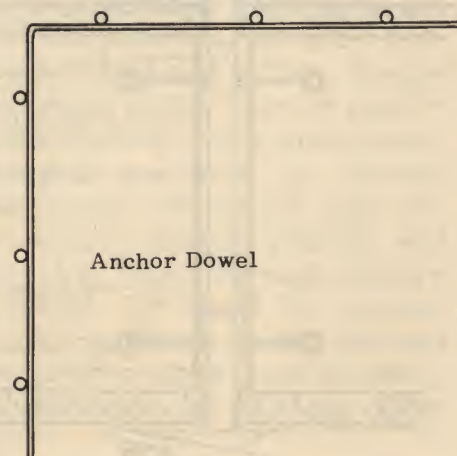
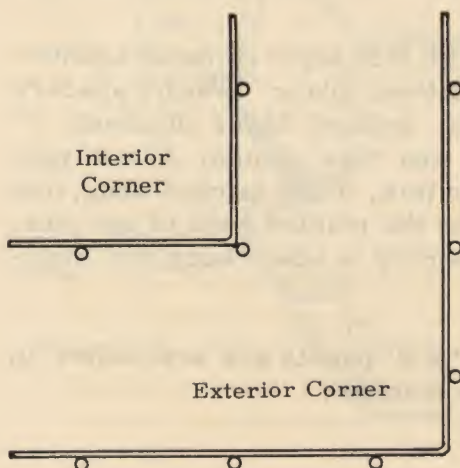
For 4 x 8 forms, use 56" x 92" (Rod each end)

For 2 x 8 forms, use 32" x 92" (Rod each end)

For interior corner, use 16" x 92" (Formed as shown)

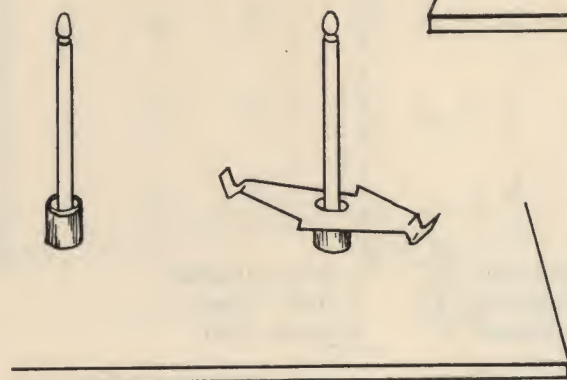
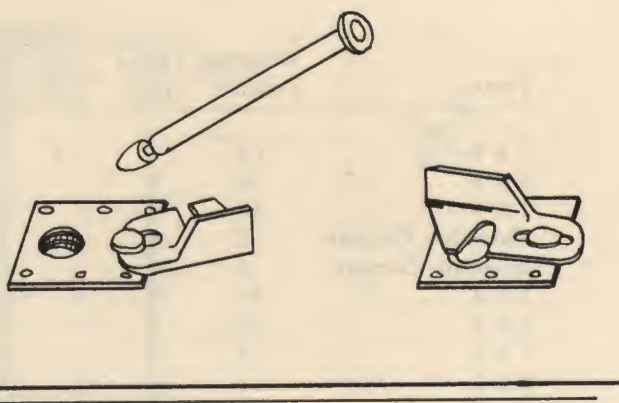
For exterior corner, use 28" x 92" (Formed as shown)

For anchor dowels between walls and roof, use 20" x 92" (Formed as shown)

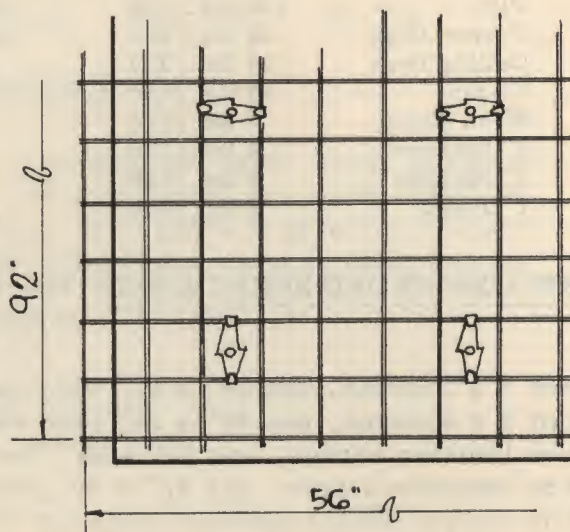


ASSEMBLY OF 4' x 8' SECTIONS

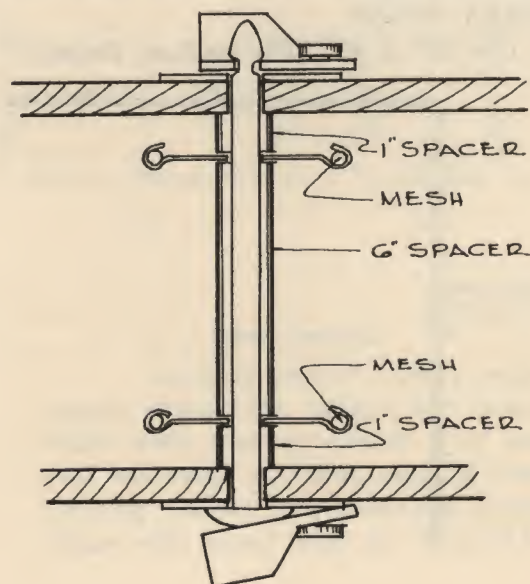
Lay one 4' x 8' panel across horses with hardware side up. Insert pins, point downward, and wedge in position with latches. Pins should be thoroughly greased as instructed.



Invert panel so that pins project upward and place a 1" spacer over each pin. Next, place mesh clips with points upward over each spacer.



Now, lay a sheet of mesh 56" x 92" to center on pins with 2 inches clear of bottom of form and bend clip ends to hold mesh in place. Some clips should run crossways to the panel and some lengthwise, to prevent shifting. If mesh is well flattened before use, it will only be necessary to use clips on about 12 of the pins.

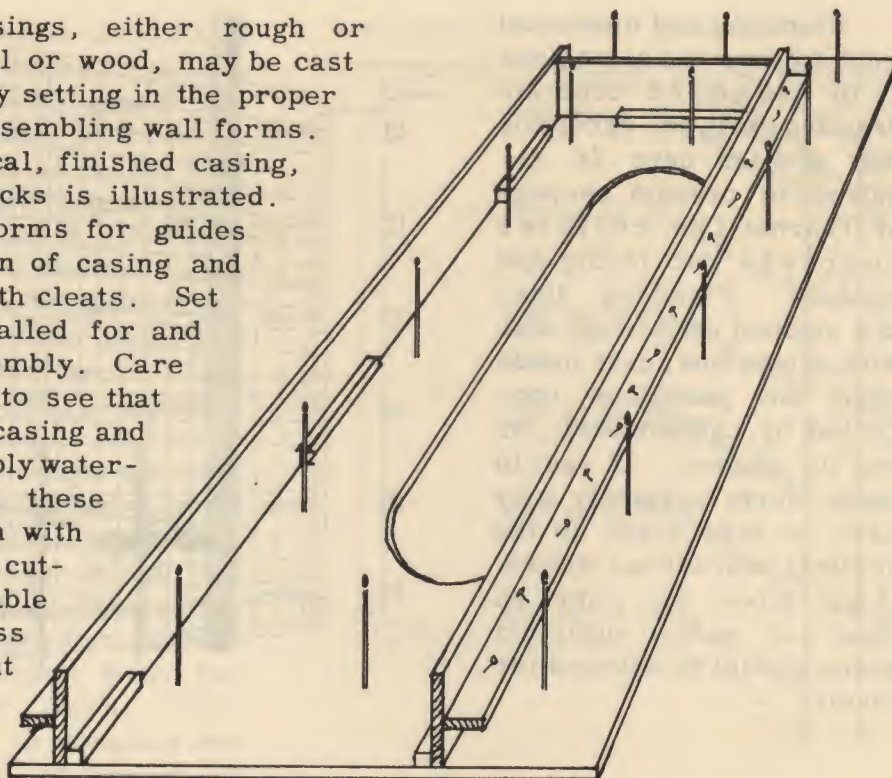


With this layer of mesh anchored in position, place 4" or 6" spacers over pins, another layer of mesh, 1" spacers, and then another 4' x 8' panel. After this, drive latches snug into notches on the pointed ends of the pins. This assembly is now ready for erection.

2' x 8' panels are assembled in the same manner.

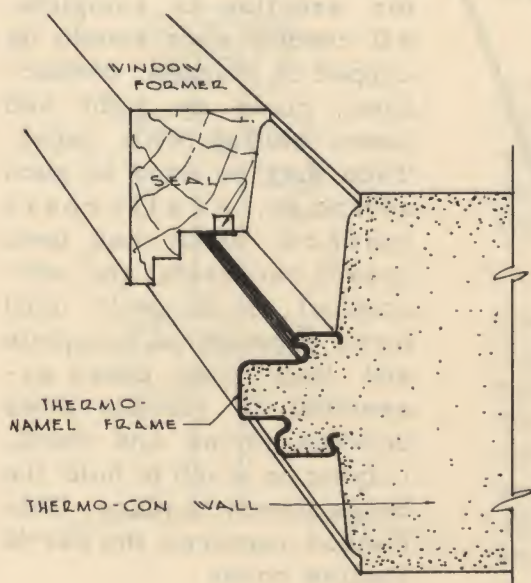
DOORS AND WINDOWS

Door casings, either rough or finished, of metal or wood, may be cast in place simply by setting in the proper position, when assembling wall forms. A simple, practical, finished casing, complete with bucks is illustrated. Using edges of forms for guides mark off location of casing and attach to panel with cleats. Set reinforcing as called for and complete the assembly. Care should be taken to see that the joint between casing and panels is reasonably water-tight. Note that these panels are shown with cut-outs. These cut-outs are advisable not only for access and ventilation, but also enable checking at this point for leakage.



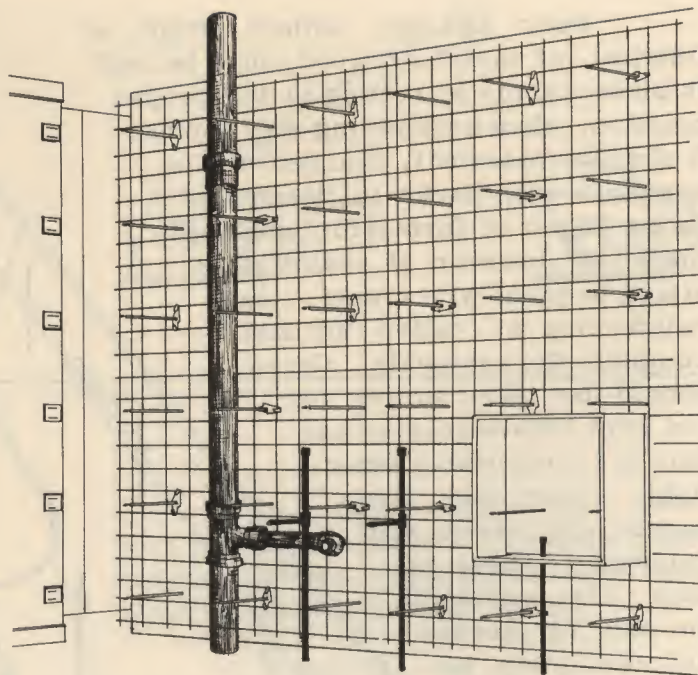
WINDOW FRAMES

Window frames of almost any type may be cast in place, using window formers to give proper contour at head jambs and sills. Formers are attached in the same way as door casings through cleats and nails. Sponge rubber stripping in this case is used to seal between window frame and former. Cut-outs again are used to provide cross-ventilation and ample light inside the forms during pouring and stripping. All holes through window frames should be taped to prevent leakage. All surfaces to be exposed should be given a light coat of heavy grease to facilitate cleaning after stripping.

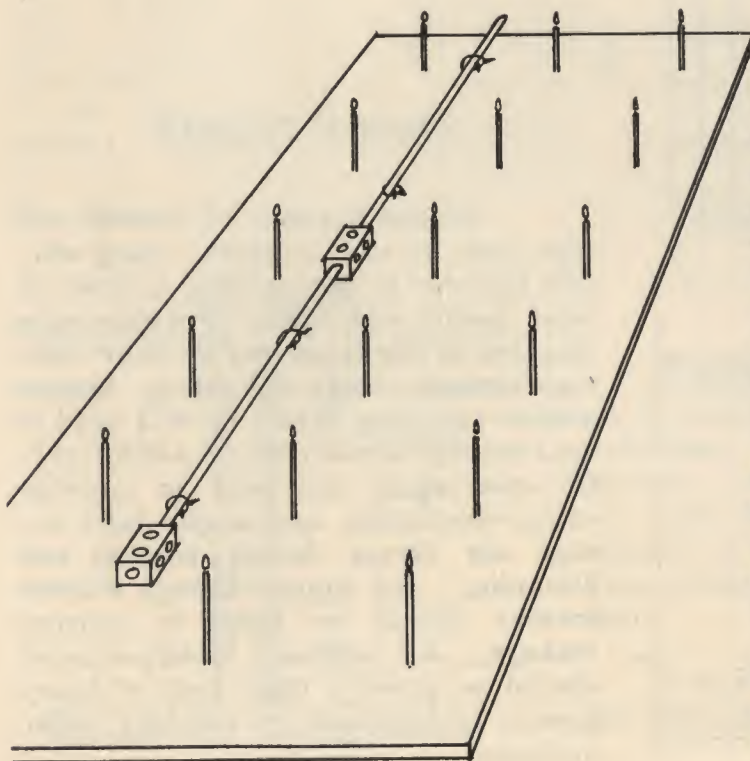


PLUMBING AND ELECTRICAL

Plumbing and electrical work follows the same lines as in standard concrete practice, with the exception that greater care is required to prevent seepage of Thermo-Con cellular concrete into piping and conduit. Plumbing lines are stubbed up through slab with extensions, cast inside walls and partitions, concealed by cabinet work, or run in chases. If cast in walls, form assembly may have to take place in the vertical position as shown. If gas pipes, etc., stub up clear of walls, sufficient space should be allowed for forms.



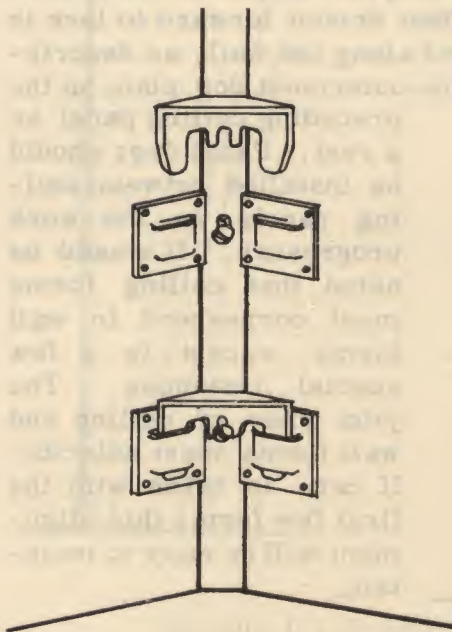
ELECTRICAL BOXES & CONDUITS



Electrical boxes and conduits may be attached to forms during assembly, then tied-in across roof after erection is complete. All conduit ends should be capped or plugged, connections made up tight and boxes stuffed with paper. Tape may be used to good advantage. An alternate method, which has been proven successful and economical is to wait until form erection is complete and then slide boxes assembled to conduit down between forms and mesh, relying on mesh to hold the boxes firmly in place. This method requires the use of shallow boxes.

ERECTION OF WALL FORMS

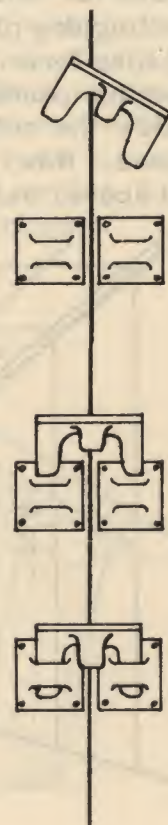
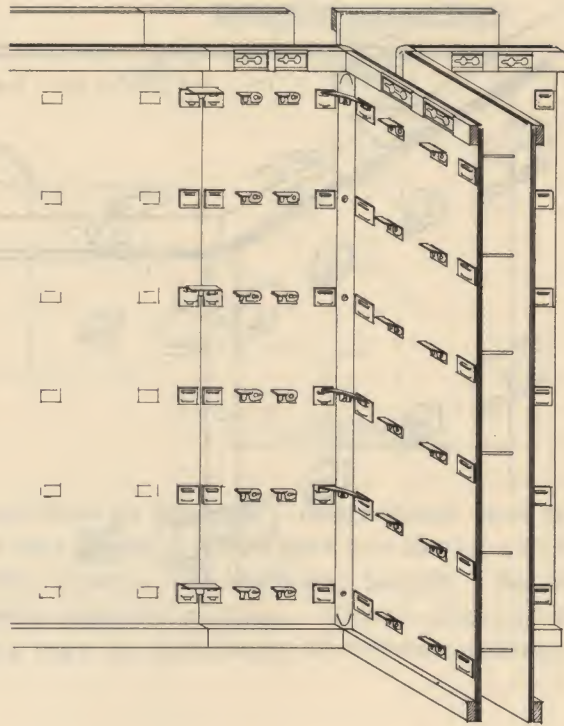
After several sections of wall forms have been assembled, erection may be started. It has been found a good practice to start erection in a corner, or where a partition intersects a wall, working in both directions from this point so that the forms are automatically braced against falling down. In either case, two sections are stood up at right angles to each other, approximately 2 inches apart. A corner dog at about mid-height makes a good gauge. The interior corner piece is now slipped into position and the corner dogs driven into the dog plates on the edges of the form. This engages the machine screws which project from the interior corner piece. Care should be taken in locating the first forms on the foundation so that form work will not need shifting after erection.



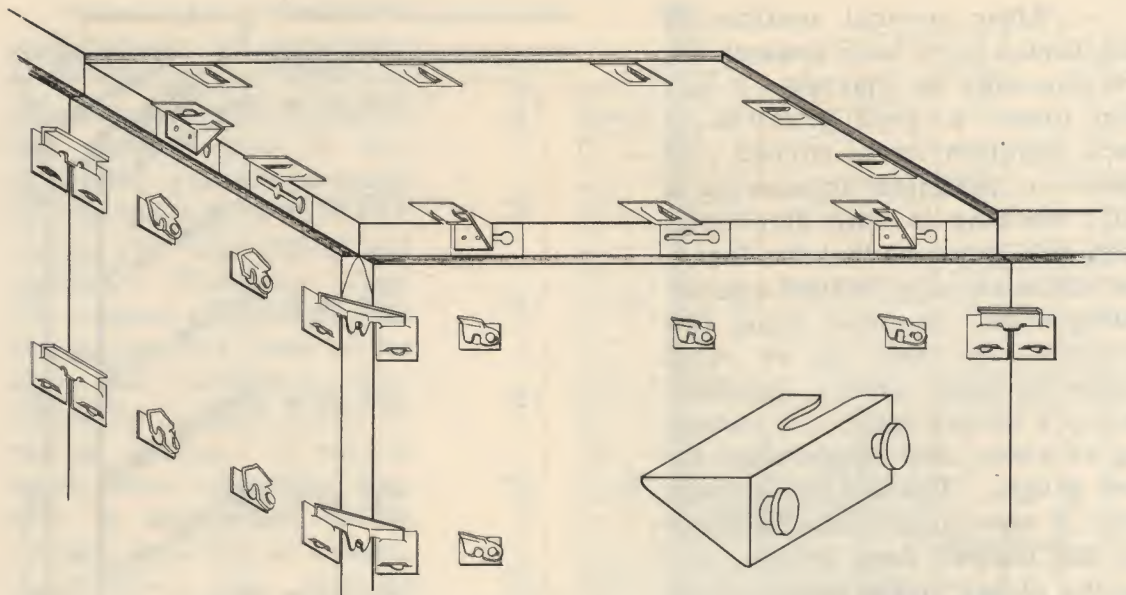
At left is illustrated the method of engaging and driving the corner dogs. Drive the dogs half-way, then set corner in and drive home.

After they are in position, the machine screws should be tightened with a screwdriver to bring the joint up flush and water-tight.

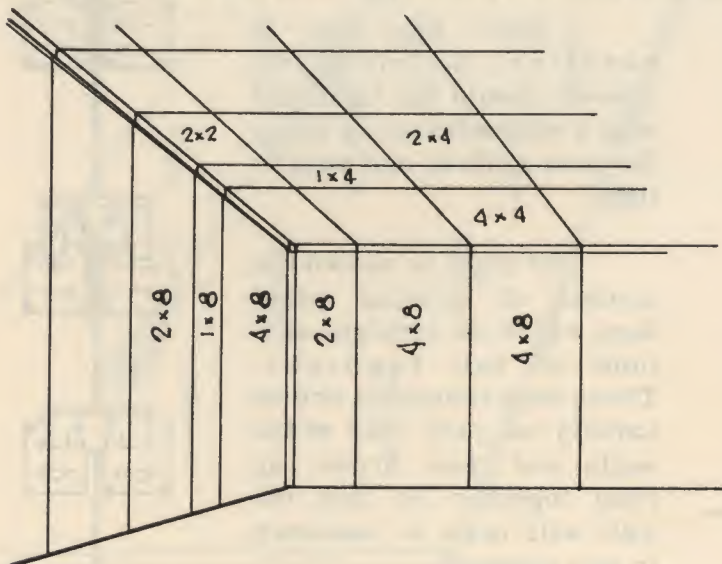
At right is shown the method of driving panel dogs which tie straight sections of wall together. These dogs should be driven loosely on each side of the walls and then drawn up snug together so that the wall will have no tendency to run crooked.



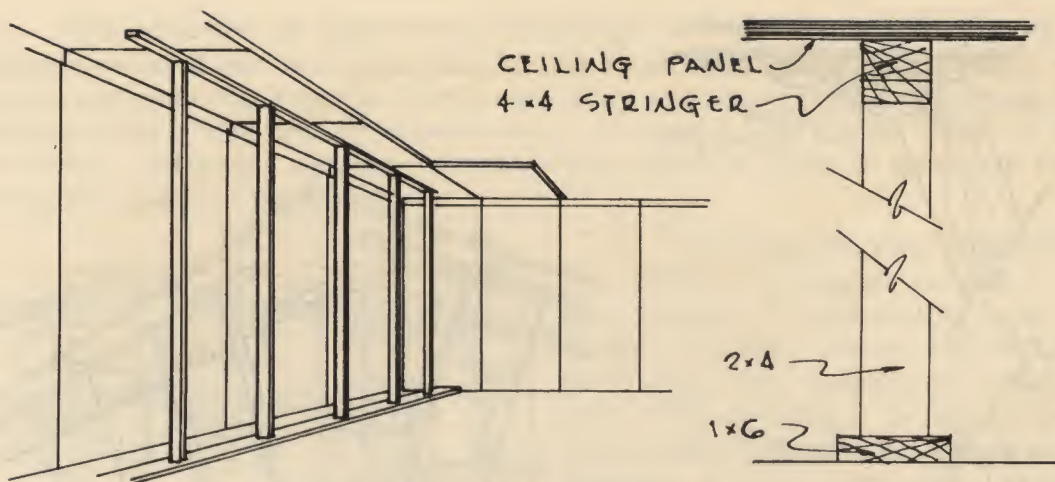
ERECTION OF CEILING FORMS



When ready to erect the ceiling forms, pick any convenient corner and set in loosely 3 ceiling dogs to act as a rest for the first ceiling panel. Now raise the ceiling panel up onto the rest and engage a ceiling dog into both the ceiling dog plate on the wall form and the corresponding panel dog plate on the ceiling form. Drive this tight and follow up with the rest of the ceiling dogs for this panel. Those that were set in loosely may be tapped backwards to allow the ceiling panel to drop into position, then driven forward to lock in place. Now, working in either direction, proceed along the wall, as described above, using a panel dog loosely driven into the outermost dog plate on the preceding ceiling panel as a rest. Panel dogs should be installed between ceiling panels as the work progresses. It should be noted that ceiling forms must correspond to wall forms, except in a few special instances. The joint lines of ceiling and wall forms must coincide. If care is taken with the first few forms this alignment will be easy to maintain.

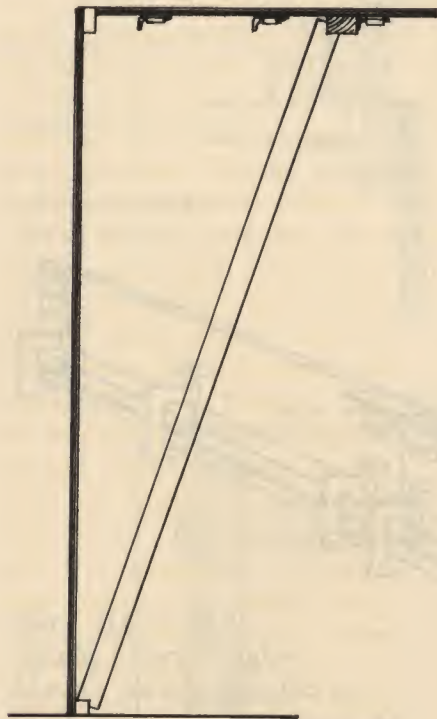


SHORING

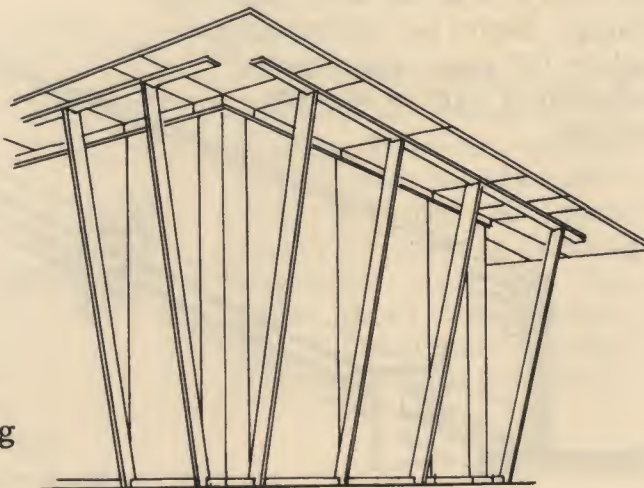


Interior shoring may be accomplished as follows: clear floor and lay 1" x 6" sheathing strips in parallel rows about 2 feet apart for lower end of shores. Cut 2x4 shores with both ends square, to uniform length. Select straight, untwisted 4 x 4's for stringers against ceiling. Cross-bracing is not required in most instances. Wedges may be necessary to correct unevenness of slab.

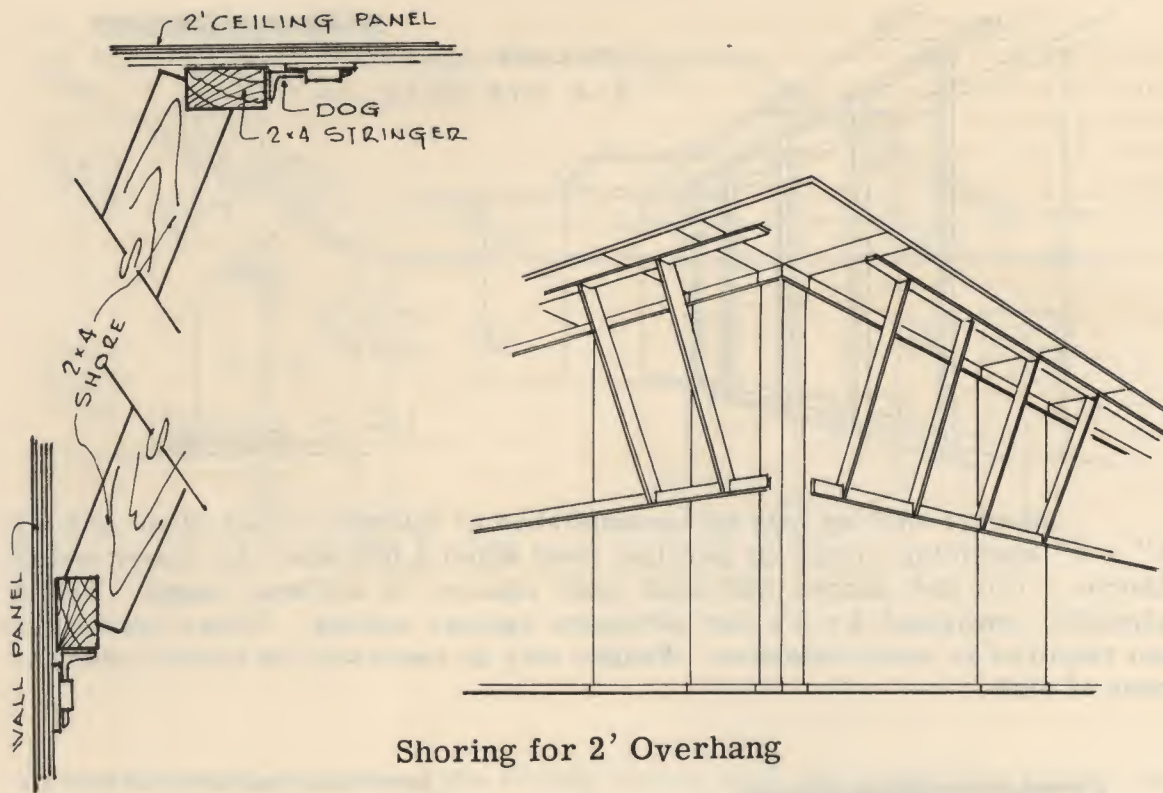
A practical method of exterior shoring is illustrated. Let lower ends of shores rest on stiffener at bottom edge of forms. Make sample section and cut diagonal shores to uniform length. Erect overhang panels, using shores without upper stringers as a temporary rest, coming back later with stringers.



Shoring for 4' Overhang



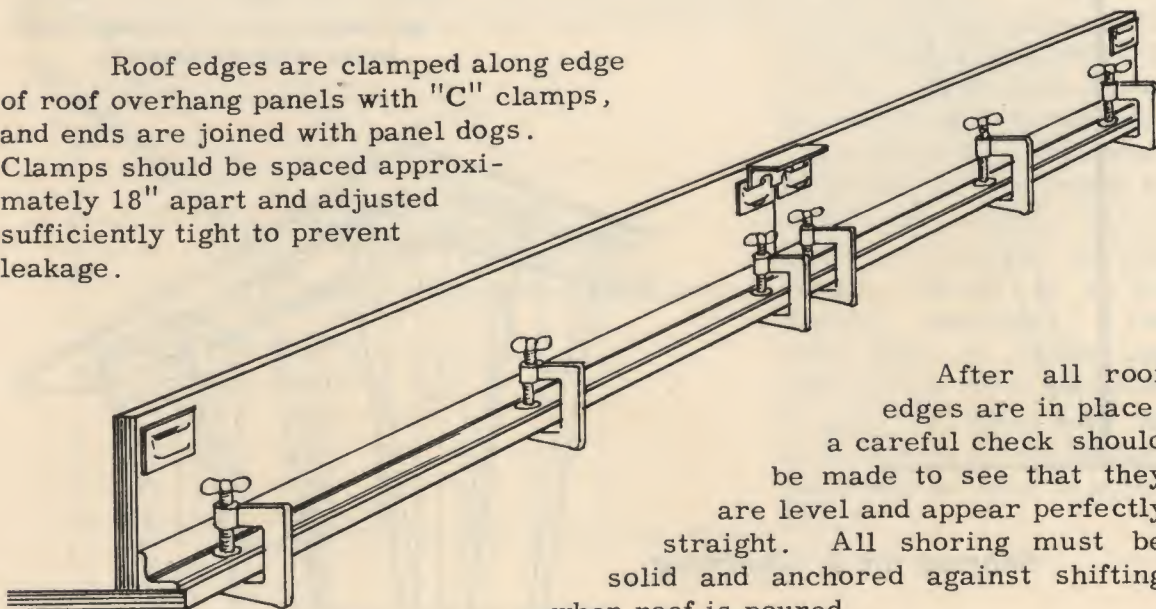
SHORING (Continued)



Shoring for 2' Overhang

ROOF EDGES

Roof edges are clamped along edge of roof overhang panels with "C" clamps, and ends are joined with panel dogs. Clamps should be spaced approximately 18" apart and adjusted sufficiently tight to prevent leakage.



After all roof edges are in place, a careful check should be made to see that they are level and appear perfectly straight. All shoring must be solid and anchored against shifting when roof is poured.

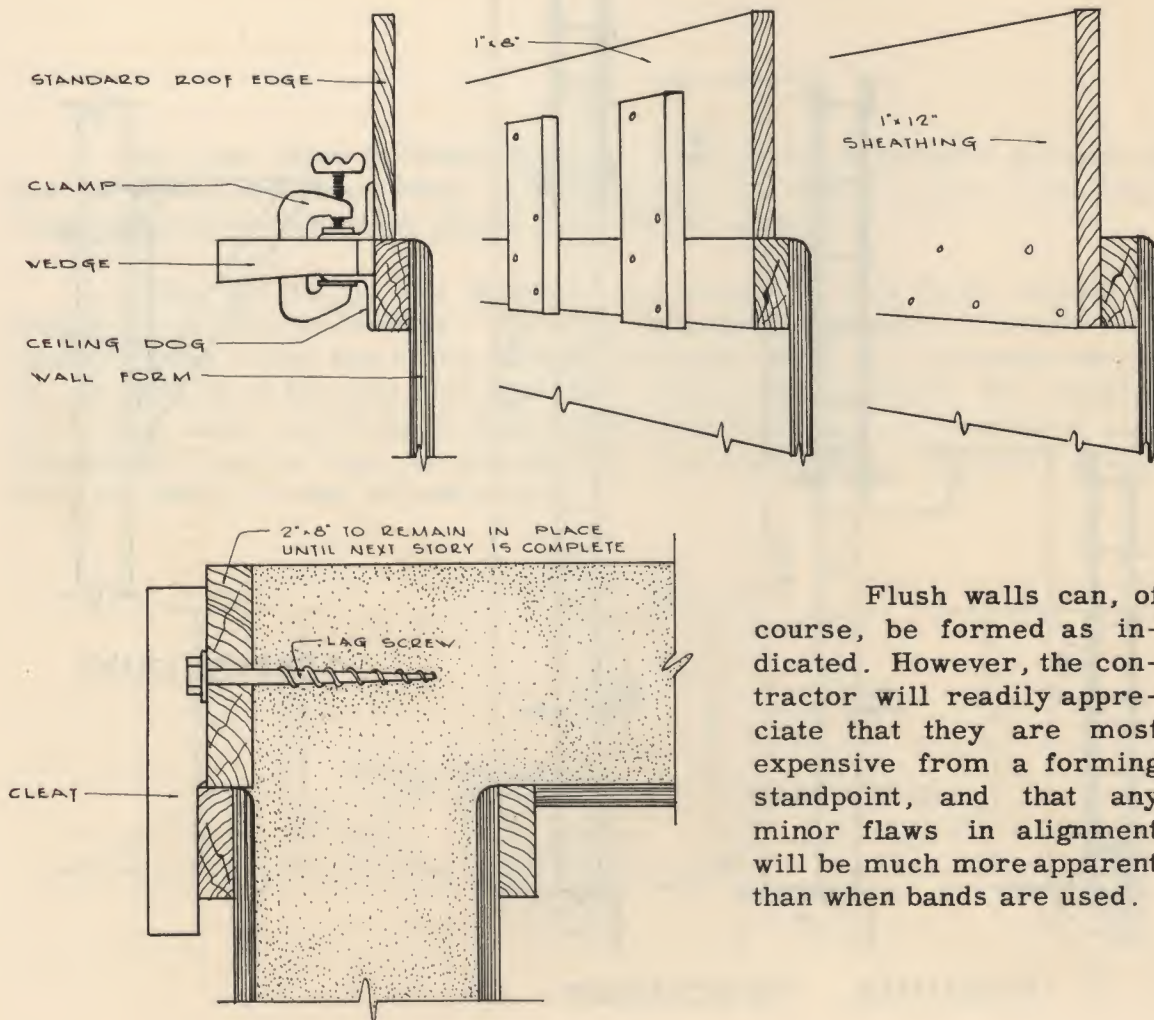
FORM SUPPORTS FOR MULTI-STORY WORK

The erection of multi-story buildings, using Thermo-Con forms is normally carried out in stages; that is, the first story walls and ceiling are formed and poured, then the forms raised up and the second story walls and ceiling poured. The ceiling of each story, of course, forms the floor of the next story. With this method, consideration must be given to means of supporting the second story forms.



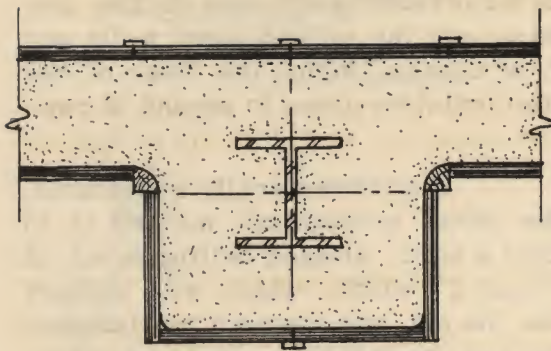
If architecturally acceptable, the most economical method is to cast a band, at each ceiling level, of 1" or 2" width, which will support the forms and remain an integral part of the building. In many cases, these bands enhance the appearance, because of the horizontal shadow so formed.

METHODS OF FORMING BANDS

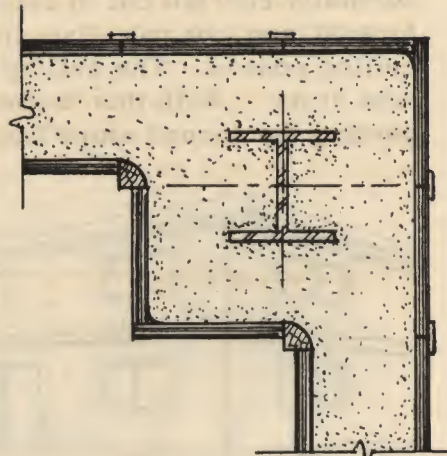


Flush walls can, of course, be formed as indicated. However, the contractor will readily appreciate that they are most expensive from a forming standpoint, and that any minor flaws in alignment will be much more apparent than when bands are used.

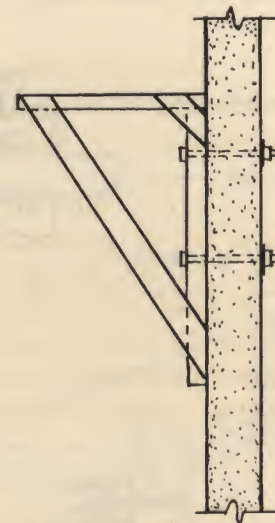
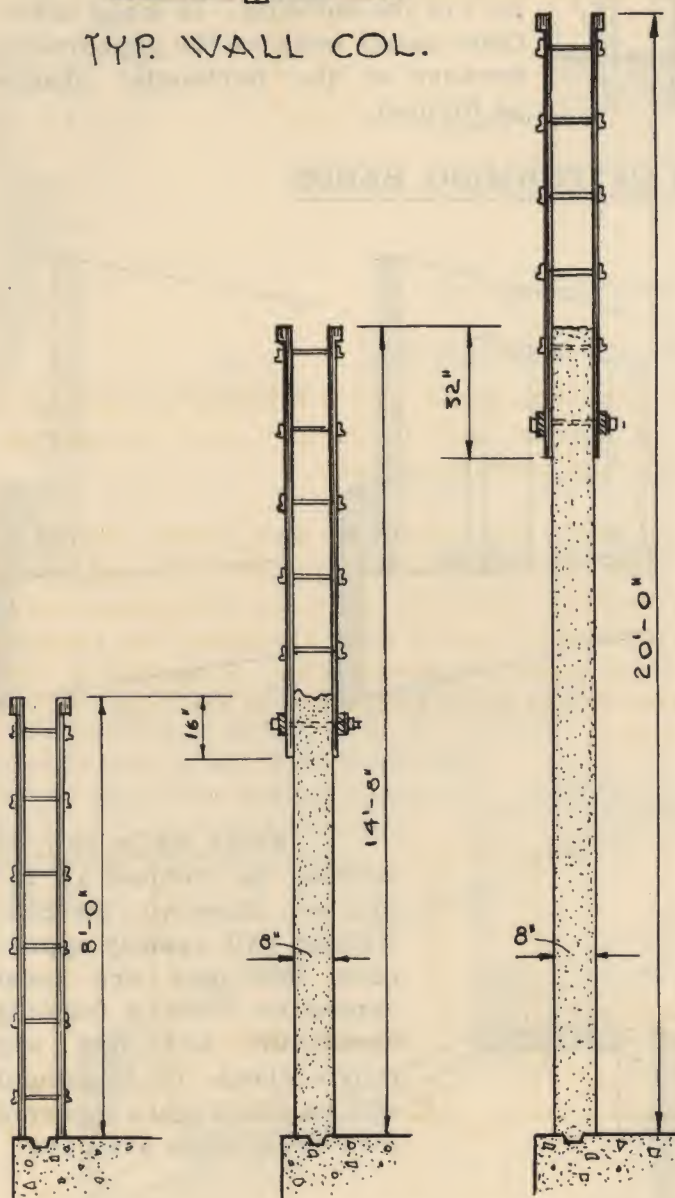
FORMING SUGGESTIONS



TYP. WALL COL.



TYP. CORNER COL.



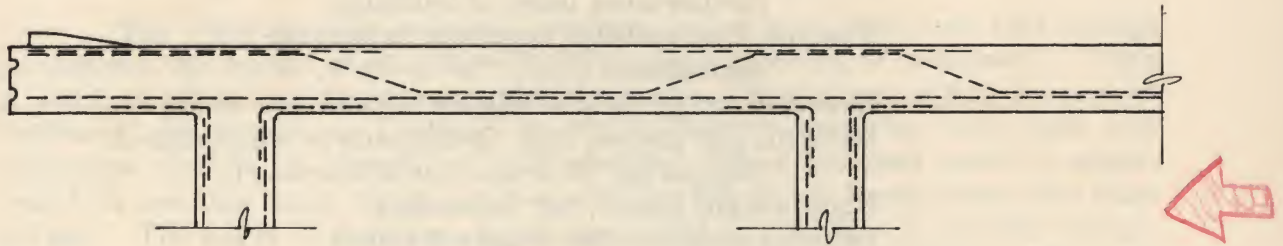
SCAFFOLDING

FORMING PROCEDURE

PLACING MESH FOR SLABS

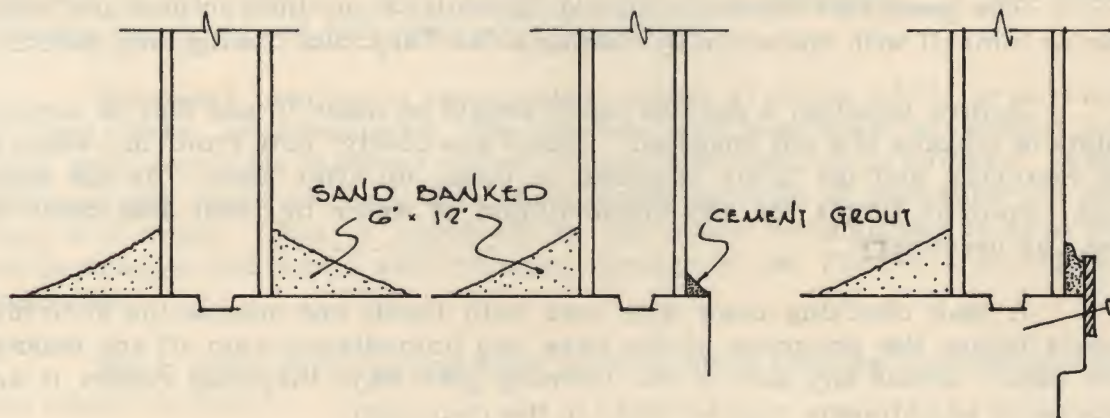
Roll mesh is most satisfactory for slab work as it reduces the amount of splicing required. Mesh must be supported off forms either with Thermo-Con blocking or by the use of high chairs.

A rule-of-thumb method is to keep bottom layer 1" up off forms, draping top layer from 7" off forms (where crossing walls) down to bottom layer at center of spans.



Any open joints in forms should be taped, and if forming is exposed to hot sun for a prolonged time, it may be well to dampen prior to pouring. This will tend to flatten the panels and cool the surface.

After the forms are erected, the bottom of wall forms should be sealed off to prevent leakage. The most satisfactory method is to bank sand against forms, using any of the methods indicated below, or variations thereof. In addition to the seal thus provided, sand is then available for stopping any small leaks occurring in form joints or around pins. A handful of sand clapped over such a leak, or even thrown from a distance at the leak, has an amazing ability to seal off and stop it.



PREPARATION FOR POURING

These items must be on the job site:

Thermo-Con generator.
Water supply line (1-1/2" fire hose)
Discharge hose sufficient to reach to
farthermost point of building.
Thermo-Con cellular concrete expansion
ingredients ("X", "Y" & "Z").
Gasoline for generator (figure 2 gals. per hour).
Lube oil and grease (see Operations & Maintenance
Manual for Thermo-Con Generator).
Light weight rakes, for screeding.
Pouring diagram (See Pages 4 and 5).
Cement.
1-gal. can to measure ingredient "X".
1 funnel.

Cement requirements may be easily estimated on the basis of 40 sacks per 100 cu. ft. of expanded material, or on basis of 80 to 120 sacks per hour per Thermo-Con generator for continuous operation.

Water requirements are 500 to 600 gals. per hour per generator. Line should be 1-1/2".

Thermo-Con cellular concrete ingredients will be needed at the rate of 1 batch per 20 cu. ft. of expanded material, or 10 to 15 batches per hour per generator. Ingredients "Y" and "Z" should be stored in a dry place, and care should be taken in handling and disposition of empty cans which held ingredient "Z". This ingredient is both poisonous and harmful to the skin. If contact is unavoidable, wash thoroughly with soap and water and rinse with vinegar.

The generator operator should carefully study instructions and familiarize himself with operation by making a few "dry runs" using only water.

Before pouring, a careful check should be made to see that no obvious points of leakage are left unsealed. Leaks are costly, both from the waste of the material, and the labor required to clean up after them. At the same time, examine forms for any accumulation of water or trash and drain or clean as necessary.

A leak checking crew with men both inside and outside the structure should follow the progress of the hose and immediately stop off any leakage with sand. Should any part of the forming give way, they can report it and necessary adjustments may be made in the pour plan.

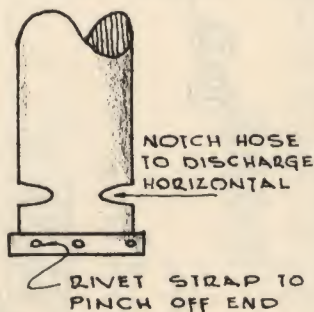
POURING WALLS

Walls should be poured at a rate not to exceed 16" (expanded Thermo-Con cellular concrete) per lift. If a pouring diagram has been prepared, it will be figured on this basis, until the material is high enough in the forms to be easily visible.

The hoseman, or job superintendent, should go over the slab area marking the location of each pouring station with chalk and making sure that proper apertures are cut through mesh to receive the hose.

The Thermo-Con cellular concrete in each lift shall set stiff enough to support the weight of the following lift before pouring is continued. Push a stick of 1"x1" down into cellular concrete. If it shows a fair amount of stiffness and brings up a clump of dryish looking material with open cell structure visible, it should be stiff enough. When the next pour is made, watch to see that large chunks of the previous lift do not break loose and float on top. The angle of the hose should be as flat as possible to prevent dredging action and the hose choke illustrated will help considerably. When the level of the Thermo-Con cellular concrete approaches the bottoms of windows

care should be taken that long areas are not blocked off at the ends leaving a void in the middle. Hollow lintels should be poured full. If slumping occurs, take a stick and punch holes at 1 foot intervals while the material is still soft. Slumping can be caused by too much water or excessive vibration and unless treated as above, may leave voids in the wall.

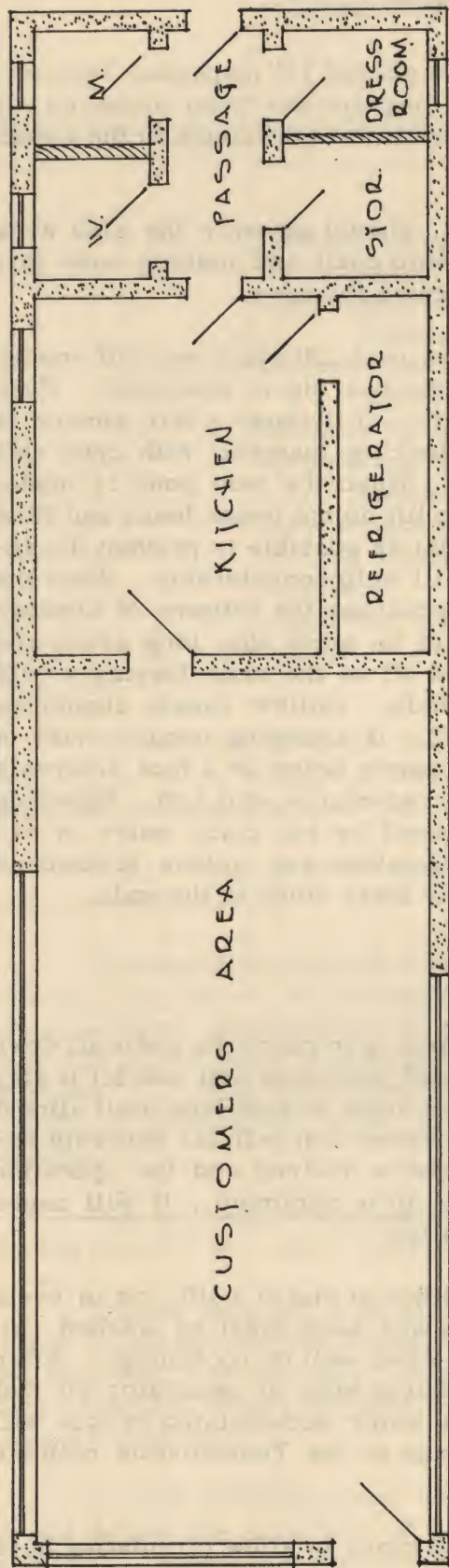


The best procedure for handling the hose is to place the end well down into the forms (either to the bottom or to top of preceding lift) and let it stay there until pour is completed. Do not move hose to next hole until almost time to pour the next batch. In this way, Thermo-Con cellular concrete expanding inside the hose will be deposited where desired and the operation will not be too messy. Keep splatter down to a minimum. It will cause laitance and scale and will spoil your disposition.

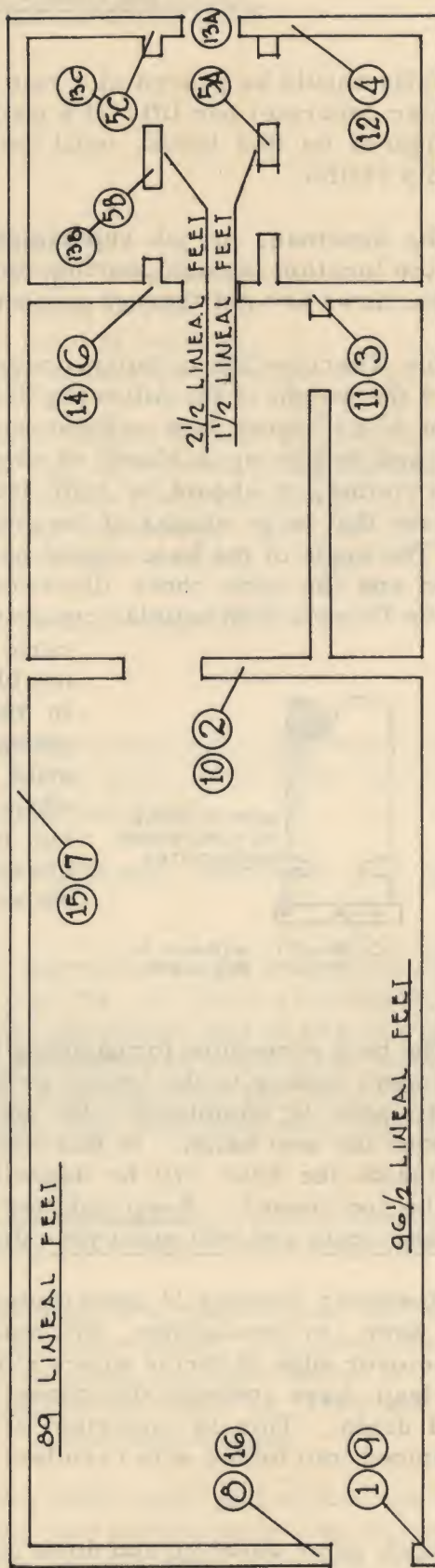
Whenever pouring is interrupted, either at end of a lift, or in event of shut-down, or breakdown, the machine and hose must be washed out. Hang hose over edge of forms where rinsing water will do no damage. After rinsing clean, have someone disconnect discharge hose at generator so that hose will drain. This is important so that water accumulated in hose will not be dumped into forms with resultant damage to the Thermo-Con cellular concrete.

Work pump valve up and down several times to allow circulating hose and mixer to drain.

POURING DIAGRAM

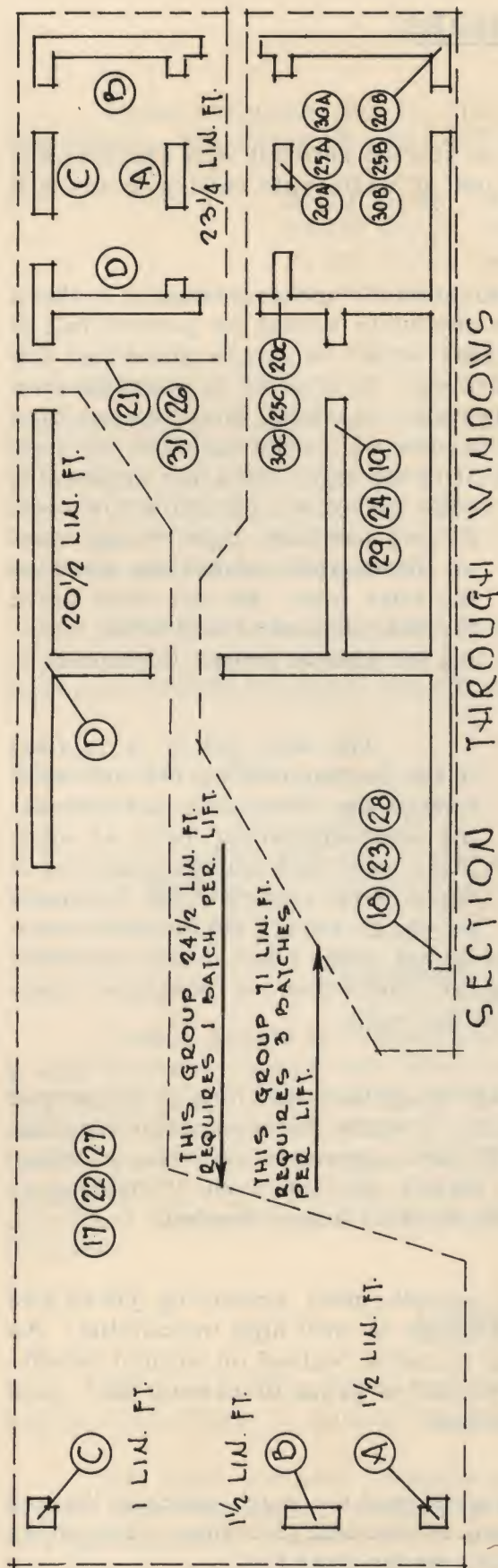


PLAN OF BUILDING



SECTION BELOW WINDOWS

To illustrate the process used to develop a pouring diagram, the plan at the top has been redrawn to show wall length at two different elevations. The total inter-connected lengths of each section should be scaled off and noted. This total is then divided by 24 to determine the number of pours required for each lift.



For the first two lifts, the total length is 189.5 feet, requiring 8 batches. Properly distributed, the 96-1/2 foot section will take four whole batches, and the two short sections, combined with the 89 foot section, take the other 4. Note that short sections should be poured at the first part of a split batch so that any error in timing or measuring will be spread over the longer length of wall.

Pours 1 thru 8 make the first lift which will yield about 16 inches of expanded height. Pours 9 thru 16 will bring the level to about 32 inches which is well above the bottom of the long banks of windows (24" off floor) and probably sealing off all windows except those in the two wash rooms and the dressing room (42" off floor). Thus, we go to the bottom sketch to plot the third and following lifts.

The total length of wall here is 118.75 feet, needing 5 batches. These are split to best advantage as illustrated; the dotted lines showing the grouping. Notice in the group taking the 21st batch, that if the windows are not sealed off completely this section will still receive enough material to correspond with other parts of the building.

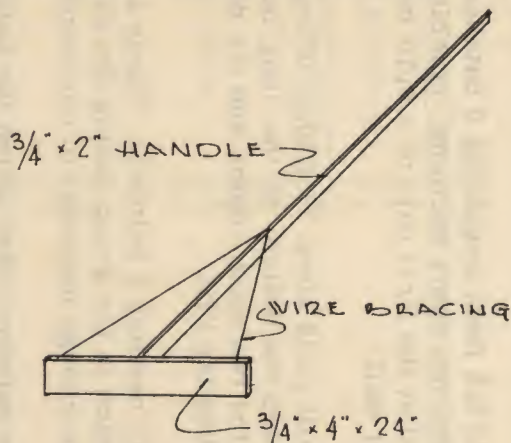
The fourth and fifth lifts follow the same pattern, after which the height is readily visible and the pouring diagram no longer needed.

POURING SLABS

Roof or slab pouring should not be started until all wall sections are within 8" of the top. Material expanding out of walls onto ceiling forms will knit with the slab material.

Slab pouring is apt to be slightly mysterious and somewhat of a shock to the average cement finisher. The form obviously cannot be poured full of liquid and smoothed off, because expansion would then take place and the Thermo-Con cellular concrete would run over. Neither is it possible on a slab of any size to pour the form partly full, expecting it to expand to a smooth, even surface. Slab pouring then becomes a combination of the two; that is, pour enough in one spot to rise a little too high, and after expansion,

rake the excess off into a low spot. A long handled, light weight rake as illustrated should be given to the hose man. He can then move the hose around to suit while keeping the slab at proper thickness.



The best policy is to start in the farthest corner and work toward the Generator, disconnecting and shortening hose as able. Make sure that enough material is deposited to complete the thickness as you go along. Do not move hose

more often than absolutely necessary, and do not choke hose or have operator slow down the pump. Make slab pouring as continuous as possible, since there is no need to wait between lifts, as in the walls.

Care must be taken to see that all mesh is maintained in the proper position. It is not possible, as in concrete, to raise the mesh after pouring, as the Thermo-Con cellular concrete will not support it until set, at which time the bond may be damaged. Grade stakes may be used if desired to maintain thickness, but should be removed when no longer needed.

With a little experience, a fairly smooth, neat appearing job can be done, however, floating or trowelling to a finish is well nigh impossible. As soon as the Thermo-Con has set up so that it can be walked on without indentation, any high spots should be cut down and a grout of cement and sand worked over the surface to the finish specified.

The tendency is to work the material around too much which in the end accomplishes little and breaks down some of the cell structure. Try not to walk in it, but perhaps boots are a good idea on the first try.

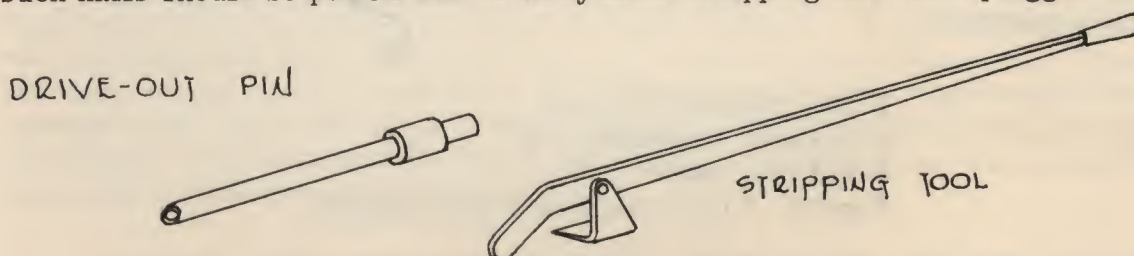
STRIPPING

Form stripping may be started from 12 to 24 hours after pouring is completed. The following guide will be helpful:

- At 70° Fahr., wait at least 12 hours
- At 60° Fahr., wait at least 16 hours
- At 40° Fahr., wait at least 20 hours
- At 30° Fahr., wait at least 24 hours

The work may begin at almost any spot, but starting with roof edges and working roof overhangs, ceilings and then the walls seems most economical. Latches, wedging heads of pins must be swung clear before driving out and the drive-out tool should be used on any stubborn pins. A rawhide mallet will suffice for most of the work if pins were greased as recommended. Continuous hammering on points with metal hammer will flatten them and cause breakage of drive-out tool. The stripping tool illustrated is handy for breaking loose wall and ceiling panels.

Do not use wrecking bars or hammer claws. Handle panel in such a manner as to avoid damage to corners and edges. If any nails were used such nails should be pulled immediately after stripping and holes plugged.



CLEANING AND STACKING

Panels should be cleaned and oiled immediately after stripping. Use a stiff broom to loosen any Thermo-Con adhering to panel and wipe clean with burlap bag. After oiling, panels should be stacked on a level foundation so as to be supported on three or more points and protected from the elements, particularly direct sunshine. Always provide adequate ventilation. ALWAYS STACK FACE TO FACE AND BACK TO BACK. Care should be exercised to see that no foreign matter is between panels that may mar faces of same.

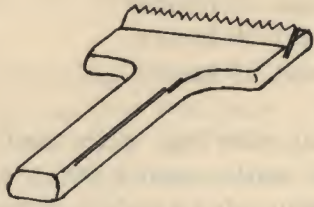
LUBRICATION

All pins holding forms together should be given a coat of heavy grease before assembling, to facilitate removal.

All form surfaces to come in contact with Thermo-Con cellular concrete, including edges, should be thoroughly and completely oiled, using API specifications concrete form oil. Forms should feel greasy to the touch but with no excess of oil. Allow a moment or two for absorption then wipe panels to distribute film.

TREATMENT AFTER STRIPPING

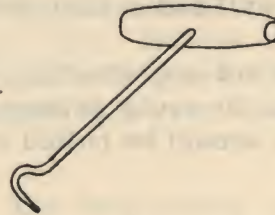
As the forms are removed, the surfaces of walls and ceilings should be scarified with some sort of tool to remove scale and laitance. Sand blasting is best, but if not available -- a scratching tool made from an old



band saw blade will suffice. Wire brushes are also useful. Scratchers made by driving nails through a wooden handle will work, but tend to cut fewer scratches to a greater depth than is desirable. Any projections should be cut down and all voids pointed up.

When sand blasting is not available, do not remove forms faster than the surface can be scratched, as Thermo-Con cellular concrete hardens much faster when exposed to air and the work becomes increasingly difficult.

The short lengths of spacers may be removed with a tool as illustrated. The holes left by pins are then pointed up with this cement grout mixture.



1 sack Portland cement
1-1/2 gal. Ingredient "X"
4-1/2 gal. water
Approx. 3 parts sand to 1 part cement

PROCEDURE & APPLICATION

- (1) Mix cement, sand and water.
- (2) Add Ingredient X, mix until color is uniform.
- (3) Push disc insert into hole left when 1" Fiber Spacer is removed. This insert will stop 1" in and will act to prevent the mortar from completely filling the hole.
- (4) Apply mortar with trowel; strike off flush with wall.

Electrical boxes should be inspected, and conduits cleaned out, if necessary, while the cellular concrete is still green.

Window formers should be removed with care to prevent damage to formers or breakage of cast edges. Window frames, if previously protected, are better left uncleaned until finishing, painting, etc., are complete.

All standard shoring can easily be identified with paint before removal so that sorting for the next job is simplified.

CURING

NO FINISH WHATSOEVER SHALL BE APPLIED TO THERMO-CON CELLULAR CONCRETE UNTIL IT HAS AGED (after stripping forms) A MINIMUM OF TWO WEEKS IN WARM, DRY WEATHER. In cool or damp weather this interval shall be increased. This precaution is taken to allow an appreciable amount of shrinkage to take place before finishing and results in fewer shrinkage checks showing through. This requirement is not to be taken to mean that roofing, or the finishing off of a slab must be delayed.

FINISHING

Exterior walls are best finished off with Thermo-Seal, which provides an excellent weather and wear-resistant surface. A full description of this material with instructions for its use is found in each container of Thermo-Seal. Other finishes applicable to concrete may be used without difficulty, provided that the surface is properly prepared and due allowances made for shrinkage. Thermo-Seal, however, has proven itself on numerous installations and is therefore recommended.

Interior walls may be finished with Thermo-Seal, and then painted with water-mixed paint. When they are painted with oil paint, they must be sized.

Roofing materials are applied in the conventional manner. Some time may be saved on roof edge details if completed while forms are in place to act as a straight edge.

Baseboards and trim may be nailed directly to Thermo-Con cellular concrete walls by driving alternate nails at an angle to each other. Wood screws and sheet metal screws will hold well if not tightened enough to strip out. For hanging heavy fixtures, lag screws with expansion shields are recommended.

Decorative panelling may be glued to Thermo-Con cellular concrete using a masonry primer and various types of adhesive.

Flooring is laid as usual.

Downspouts, of course, should not be installed until wall has been completely finished.

Thermo-
Con *Cellular*
Concrete System

Reg. U. S. Pat. Office

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